PROGRAMMABLE OPTICAL ARRAY

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ABSTRACT OF THE DISCLOSURE

Programmable semiconductor elements, such as zener diodes, are used in an optical array. In one embodiment, an array of zener diodes is formed on a substrate surface and selectively zapped (programmed) to create a reflective filament between anode and cathode contacts of the selected zener diodes. Light is then applied to the surface. The reflected (or transmitted) light pattern may be used for conveying optical information or exposing a photoresist layer. In one use of the array to selectively expose a photoresist layer, the array helps to determine which genes have been expressed in a BioChip. Devices other than zener diodes may also be programmed to create a reflective filament for optically conveying information, such as bipolar transistors, MOSFETS, and non-semiconductor devices. The reflective filament can be a portion of a fuse or anti-fuse.